RIBAK*, C.E., Department of Anatomy, Boston University School of Medicine, Boston, Massachusetts. (Sponsored by Alan Peters) An autoradiographic study of projections from the lateral geniculate nucleus in the rat.

The projections from the lateral geniculate body of the rat were followed using the method of autoradiography after injections of ^{3}H-proline into the dorsal (dLGN) and/or ventral (vLGN) nuclei of this diencephalic structure. The dLGN projects via the optic radiation to cortical area 17 of Krieg (J. Comp. Neur., 84: 1946). There is also a slight extension of label into the zones of transition of area 17 with areas 18 and 18a. The distribution of silver grains in the various layers of the cerebral cortex was analyzed quantitatively and shows a major peak of labeling in layer IV with minor peaks in outer layer I and the upper half and lowest part of layer VI. The positions of these peaks is considered in relation to the results of Rosenquist, Edwards and Palmer (Brain Res., 80: 1974). The vLGN has five major projections to brainstem structures both ipsilateral and contralateral to the injected nucleus. Dorsomedial projections include (1) a projection to the superior colliculus which terminates mainly in the medial third of the stratum opticum and (2) a large projection via the superior thalamic radiation which terminates in the ipsilateral pretectal area and continues through the posterior commissure to attain the contralateral pretectal area. Ventromedial projections include (1) a geniculopontine tract which courses through the basis pedunculi and the lateral lemniscus to terminate in the dorsomedial and dorsolateral parts of the pons after giving terminals to the lateral terminal nucleus of the accessory optic tract (LTN), (2) a projection via Meynert's commissure to the suprachiasmatic nuclei of both sides of the brainstem as well as to the contralateral vLGN and LTN and (3) a medial projection to the ipsilateral zona incerta. These results are compared with those of Swanson, Cowan and Jones (J. Comp. Neur., 156: 1974) and are considered in relation to other data on central visual connections.

(Supported by Training Grant 5 TOI GM 01979)